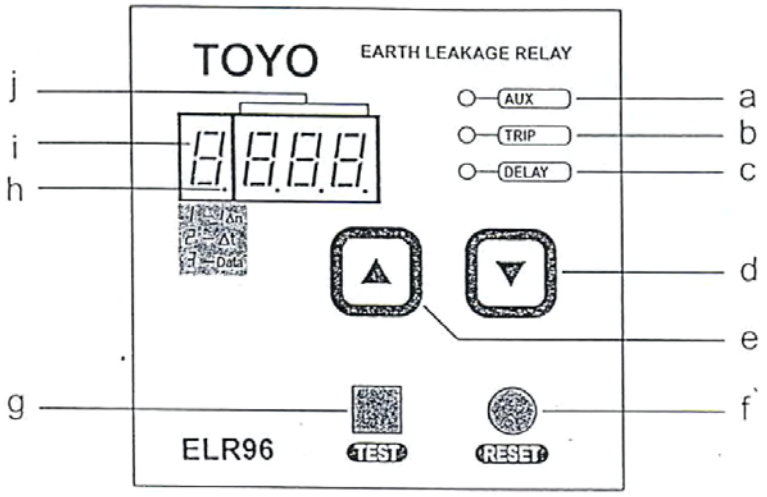
ELR96 Earth Leakage Relay User'S Guide

A BRIEF OVERVIEW



a – Auxiliary power supply indicator
b – Relay trip status indicator
c – Time delay status indicator
d – Down key
e – Up key
f – Reset key
g – Test key
h – DP indicator
i – FUNCTION indicator
j – VALUE indicator

1. DESCRIPTION：

The ***ELR96*** and ***ELR96A*** are microprocessor based numerical earth leakage relays designed to monitor the leakage current in a electrical installation. With the use of microprocessor technology and digital signal processing technique, the ***ELR96*** and ***ELR96A*** relays are equiped with state-of-the-art digital hormonic filter to minimise nuisance tripping.

The ***ELR96*** & ***ELR96A*** relays can continuously display the leakage current on the front display panel. When the relay trip as a result of a leakage being detected, the leakage current will be recorded. This reco-ded leakage current and all the settings on the relay can be viewed at by pressing the RESET button on the relay.

ELR96A comes with two additional remote control inputs.The additional inputs are remote test input and the remote reset input. Other additional features of the ***ELR96*** include positive safety output contact and 50% pre-fault contact.

2. LIGHT INDICATORS：

The indicators display the status of the system as follow：

Indicator					Status
Aux	Trip	Delay	FUNC	VL	
0	0	0	0	0	NO auxiliary supply.
1	0	0	0	1	Normal condition, no tripping.
1	0	1	×	×	Leakage current exceeded set limit, time delay coundown started.
1	B	0	×	B	Delay time lapsed and relay tripped.
1	0	×	1	1	Scroll through setting.
1	0	×	B	1	Programming mode.

1 = NO
0 = OFF
X = Don't care
B = Blinking
VL = VALUE
FUNC = FUNCTION

Table 1：system status

FUNC	DP	VALUE
OFF	OFF	Real-time leakage current.
1	Blink	Sensitivity setting.
2	Blink	Delay time setting.
3	Off	Previous tripped leakage current.

Table 2：function codes

Message	Description
“E Ct”	Error in ZCT connection
“OFL”	Overflow . The measurement exceeded the display range for the respective sensitivity setting range. Display range for sensitivity setting range 1：From 0.00A to 0.22A Display range for sensitivity setting range 2：From 0.00A to 1.10A Display range for sensitivity setting range 3：From 0.00A to 3.10A
“tESt ”	Relay tripped under test mode

Table 3：Display messages

3. PUSH-BUTTONS OPERATION

a) Trip test

Press the “TEST ” button to simulate a trip. Condition.

b) Trip test

Press the “TSET” button to reset the relay when tripped.

c) View setting

When the relay is not under tripped condition, pressing the “RESET” button will scroll through the various functions of the relay.

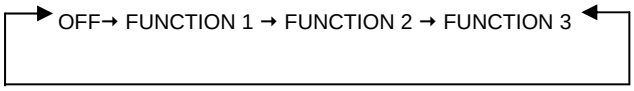


Figure 1：Scroll sequence

d) Program setting

Only function codes 1 and 2 can be programmed.

Setp 1：Press “RESET” key until the function digit Shows required function.

Step 2：Press the UP and DOWN key simultaneously to enter Programming mode. The function digit blinks to indicates the relay is in programming mode.

Step 3：Use the UP or DOWN key to select the desired value.

Step 4：TO save the selected value, press the UP and DOWN key simultaneously. This will exit the programming mode with the selected setting being saved.

TO exit programming mode without saving the selected setting, press the “RESET” key once.

*4. REMOTE CONTROL INPUTS **

a) Remote test input

This digital input is similar to the “ TEST ” pushbutton. To remotely test the relay, make a connection between terminals 4 and 6 of the relay.

b) Remote reset input

This digital input is to remotely reset the relay when tripped. To reset the relay, make a connection between terminals 4 and 5 of the relay.

5. OUTPUT CONTACTS

a) Trip contact：

This is a latching type contact. It is activated under following conditions：

- broken connection between the relay and the ZCT.
- leakage current exceeded the sensitivity setting.

b) 50% pre-fault contact *****

- Activated when leakage current reaches 50% of the sensitivity setting.

c) Safety contact *****

- Activated when the auxiliary supply is connected and the relay is functioning normally.
- De activated when connection to the ZCT from relay is interrupted or auxiliary supply failure.

6. TECHNICAL DATA

Models

ELR96-5 & ELR96A-5	：50Hz
ELR96-5 & ELR96A-6	：60hz

Auxiliary Supply

Supply voltage	：198～265 VAC
Rated frequency	：OR 50Hz
VA rating	：3 VA typical

Setting

Sensitivity Adjustment	：Range 1 is stepping from 0.03A → 0.05 → 0.10A → 0.15A
	：Range 2 is from 0.20A to 0.75A in step of 0.05A
	：Range 3 is from 0.80A to3.00A in step of 0.05A
Delay Time Adjustment	：From 0.05 to 3.00 sec in step of 0.05 sec
	：From 3.00 to 10.0 sec in step of 5.0 sec

Remote test /Reset inputs ：N.O.dry contact *****

Output

Trip Contact：	
Rated voltage	：250 VAC
Continuous carry	：6A (COS ϕ =1.0)
Make and carry for 0.2s	：30A
Safety Contact：*****	
Rated voltage	：250 VAC
Continuous carry	：5A (COS ϕ =1.0)
Make and carry for 0.2s	：10A
50% Pre-fault Contact *****	
Rated voltage	：250 VAC
Continuous carry	：5A (COS ϕ =1.0)
Make and carry for 0.2s	：10A
Contact specification：	
Contact arrangement	：change-over
Contact material	：Silver alloy
Operating time	：15ms max.
Expected electrical life	：100,000 operations at rated current
Expected mechanical life	：5 million operations
Approval	：UL / CSA，VDE，TUV

Indicators

Auxiliary supply	：green color LED indicator
Time delay	：red color LED indicator
Trip	：7-segment LED and red color LED indicator
Real-time leakage current	：7-segment LED

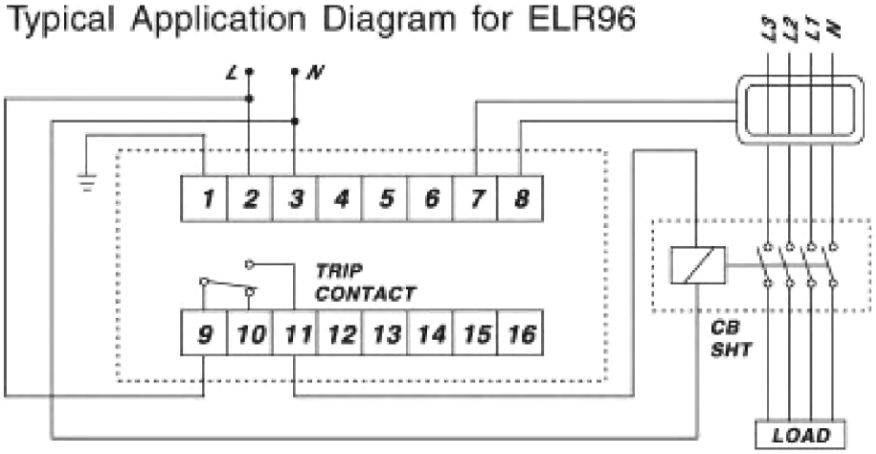
Mechanical

Mounting method	: Panel mounting
Front panel	: Standard DIN 96mm × 96mm
Approximate weight	: 0.8 kg

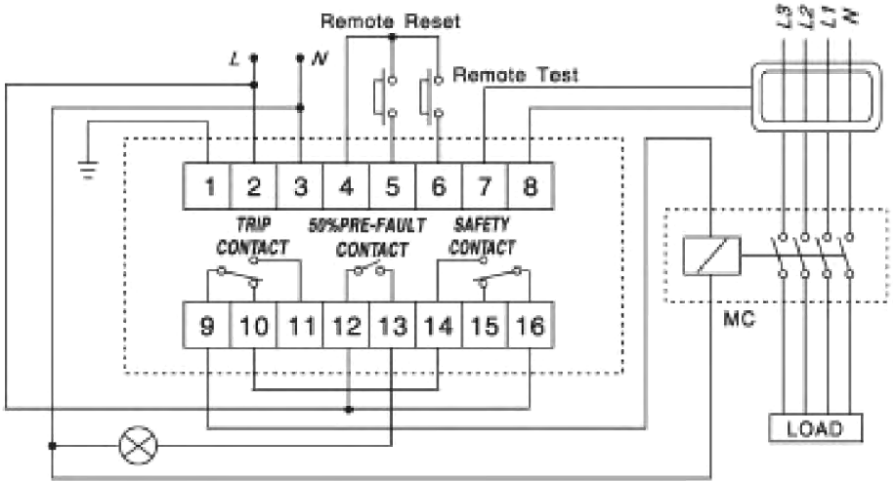
* Applicable to **ELR96A** series only

7. CONNECTION DIAGRAMS

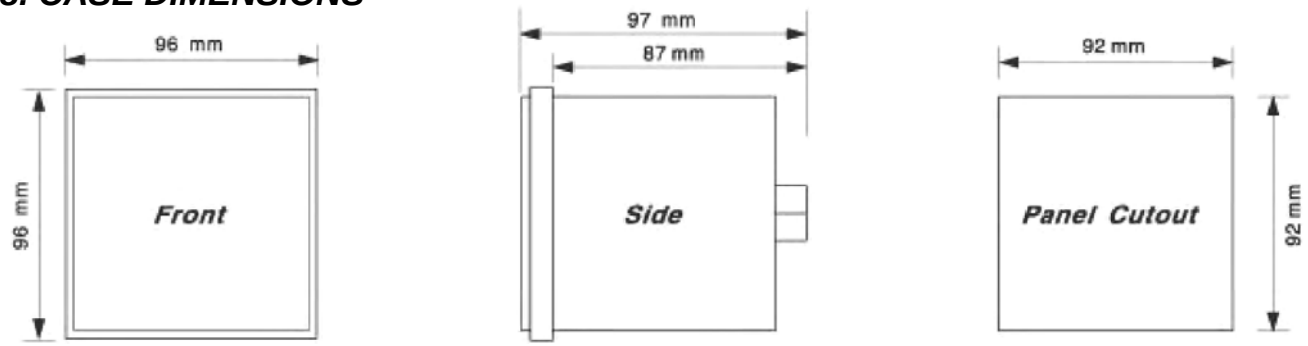
Typical Application Diagram for ELR96



Typical Application Diagram for ELR96A



8. CASE DIMENSIONS



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